

WHAT IS CLAIMED IS:

1. An optoelectronic packaging assembly, comprising:

a cover;

a submount retaining a plurality of transmission line pins, each comprised of an inner conductor, a dielectric sheath, and an outer conductive shield, wherein said plurality of transmission line pins extend from a cavity within said submount to an exterior of the optoelectronic packaging assembly; and

a base;

wherein said cover, said submount and said base mate to form a package for retaining an optoelectronic device, and wherein said plurality of transmission line pins are for conducting electrical signals for the optoelectronic device.
2. An optoelectronic packaging assembly according to claim 1, wherein said transmission line pins have rectangular cross-sections.
3. An optoelectronic packaging assembly according to claim 1, wherein said transmission line pins have circular cross-sections.
4. An optoelectronic packaging assembly according to claim 1, wherein said submount, said base, and said cover are comprised of a nonconductive plastic.
5. An optoelectronic packaging assembly according to claim 4, wherein said nonconductive plastic is a liquid crystal polymer.

6. An optoelectronic packaging assembly according to claim 4, wherein said nonconductive plastic has a conductive material on a surface.
7. An optoelectronic packaging assembly according to claim 6, wherein said nonconductive plastic electrically contacts at least one outer conductive shield.
8. An optoelectronic packaging assembly according to claim 1, wherein said sheath is comprised of polytetrafluoroethylene.
9. An optoelectronic packaging assembly according to claim 1, wherein each of said plurality of transmission line pins includes an inner portion with an exposed inner conductor.
10. An optoelectronic packaging assembly according to claim 1, wherein each of said plurality of transmission line pins includes an outer portion wherein said inner conductor is exposed.
11. An optoelectronic packaging assembly according to claim 1, wherein said cover includes a cavity with walls.
12. An optoelectronic packaging assembly according to claim 1, wherein said walls are beveled.
13. An optoelectronic packaging assembly according to claim 1, wherein said cover includes fins.
14. An optoelectronic packaging assembly according to claim 1, wherein said cover includes a plurality of shield walls that are each coated or plated with a conductive material.

15. An optoelectronic packaging assembly according to claim 1, wherein said cover includes a relief for receiving said optical input receptacle.

16. An optoelectronic packaging assembly according to claim 6, wherein said conductive material covers both an inner surface and an outer surface.

17. An optoelectronic packaging assembly according to claim 1, further including a raised mount in said cavity.

18. An optoelectronic packaging assembly according to claim 17, further including an electro-optical device on said raised mount.

19. An optoelectronic packaging assembly according to claim 1, wherein said optical input receptacle includes a half-moon shaped slot.

20. An optoelectronic packaging assembly according to claim 1, wherein said base includes a mounting flange having a mounting hole.

21. An optoelectronic packaging assembly according to claim 1, further including a thermal-electric-cooler.

22. An optoelectronic packaging assembly according to claim 21, wherein said thermal-electric-cooler fits into a cavity and on said base.

23. An optoelectronic packaging assembly according to claim 1, wherein said optoelectronic packaging assembly further includes an optical input receptacle.

24. An optoelectronic packaging assembly according to claim 23, further including an optical ferrule in said optical input receptacle.

25. An optoelectronic packaging assembly according to claim 24, further including an optical fiber inserted into said optical ferrule.

26. An optoelectronic packaging assembly according to claim 25, further including an electro-optical device in said optoelectronic packaging assembly, wherein said electro-optical device is optically coupled to said optical fiber.

27. An optoelectronic packaging assembly according to claim 26, further including an optical spacer that assists optical coupling.

28. An optoelectronic packaging assembly according to claim 27, further including clamps for clamping said optical spacer.

29. An optoelectronic packaging assembly according to claim 1, wherein said submount includes a plurality of external ground bumps disposed between said transmission line pins.

30. An optoelectronic packaging assembly, comprising:

- a cover;
- a submount retaining a plurality of transmission line pins, each comprised of an inner conductor, a dielectric sheath, and an outer conductive shield, that extend from a cavity within said submount to an exterior of said submount, said submount further including barriers between adjacent transmission line pins, wherein said barriers have a conductive material over surface; and
- a base;

wherein said cover, said submount, and said base mate to form a package for retaining an optoelectronic device, and wherein said plurality of transmission line pins are for conducting electrical signals for the optoelectronic device.

31. An optoelectronic packaging assembly according to claim 30, wherein said transmission line pins have rectangular cross-sections.

32. An optoelectronic packaging assembly according to claim 30, wherein said transmission line pins have circular cross-sections.

33. An optoelectronic packaging assembly according to claim 30, wherein said submount, said base, and said cover are comprised of a nonconductive plastic.

34. An optoelectronic packaging assembly according to claim 33, wherein said nonconductive plastic is a liquid crystal polymer.

35. An optoelectronic packaging assembly according to claim 33, wherein said nonconductive plastic has a conductive material on a surface.

36. An optoelectronic packaging assembly according to claim 35, wherein said nonconductive plastic electrically contacts at least one outer conductive shield.

37. An optoelectronic packaging assembly according to claim 30, wherein said sheath is comprised of polytetrafluoroethylene.

38. An optoelectronic packaging assembly according to claim 30, wherein each of said plurality of transmission line pins includes an inner portion with an exposed inner conductor.

39. An optoelectronic packaging assembly according to claim 30, wherein each of said plurality of transmission line pins includes an outer portion wherein said inner conductor is exposed.

40. An optoelectronic packaging assembly according to claim 30, wherein said cover includes a plurality of interior shield walls that align with said plurality of barriers.

41. An optoelectronic packaging assembly according to claim 30, wherein said cover includes fins.

42. An optoelectronic packaging assembly according to claim 30, wherein said cover includes a relief.

43. An optoelectronic packaging assembly according to claim 30, wherein said cover includes a cavity defined by walls.

44. An optoelectronic packaging assembly according to claim 43, wherein at least one cavity wall is beveled.

45. An optoelectronic packaging assembly according to claim 30, wherein said submount includes a plurality of external ground bumps that are disposed between said transmission line pins.

46. An optoelectronic packaging assembly according to claim 30, wherein said base includes a plurality of fins covered with a conductive material.

47. An optoelectronic packaging assembly according to claim 30, further including an optical input receptacle for retaining an optical fiber.

48. An optoelectronic packaging assembly according to claim 30, wherein said base includes an insert molded thermally conductive plate.

49. An optoelectronic packaging assembly according to claim 30, further including a thermal-electric-cooler.

50. An optoelectronic packaging assembly according to claim 49, wherein said thermal-electric-cooler fits on said base.

51. An optoelectronic packaging assembly according to claim 48, further including a thermal-electric-cooler on said thermally conductive plate.

52. An optoelectronic packaging assembly according to claim 51, wherein said thermally conductive plate is formed to mate with an external structure.

53. An optoelectronic packaging assembly according to claim 30, wherein each of said plurality of transmission line pins includes an inner portion within the optoelectronic packaging assembly wherein said inner conductor is exposed.

54. An optoelectronic packaging assembly according to claim 30, wherein each of said plurality of transmission line pins includes an outer portion wherein said inner conductor is exposed.

55. An optoelectronic packaging assembly according to claim 30, wherein said base includes a flange with mounting holes.

56. An optoelectronic packaging assembly, comprising:
a cover;

a submount retaining a plurality of transmission line pins that extend from a cavity within said submount to an exterior of said submount;

a base; and

an optoelectronic device disposed between said submount and said base;

wherein said cover, said submount, and said base mate to form a package for retaining said optoelectronic device, and wherein said plurality of transmission line pins are for conducting signals for said optoelectronic device.

57. An optoelectronic packaging assembly according to claim 56, wherein said transmission line pins have rectangular cross-sections.

58. An optoelectronic packaging assembly according to claim 56, wherein said transmission line pins have circular cross-sections.

59. An optoelectronic packaging assembly according to claim 56, wherein said transmission line pins bend to run alongside said base.

60. An optoelectronic packaging assembly according to claim 56, wherein said submount, said base, and said cover are comprised of a nonconductive plastic.

61. An optoelectronic packaging assembly according to claim 60, wherein said nonconductive plastic is a liquid crystal polymer.

62. An optoelectronic packaging assembly according to claim 60, wherein said nonconductive plastic has a conductive material on a surface.

63. An optoelectronic packaging assembly according to claim 62, wherein said nonconductive plastic electrically contacts at least one outer conductive shield.

64. An optoelectronic packaging assembly according to claim 56, wherein said sheath is comprised of polytetrafluoroethylene.

65. An optoelectronic packaging assembly according to claim 56, wherein each of said plurality of transmission line pins includes an inner portion with an exposed inner conductor.

66. An optoelectronic packaging assembly according to claim 56, wherein each of said plurality of transmission line pins includes an outer portion wherein said inner conductor is exposed.

67. An optoelectronic packaging assembly according to claim 56, wherein said cover includes a plurality of interior shield walls.

68. An optoelectronic packaging assembly according to claim 56, wherein said cover includes fins.

69. An optoelectronic packaging assembly according to claim 56, wherein said cover includes a relief.

70. An optoelectronic packaging assembly according to claim 56, wherein said cover includes a cavity defined by walls.

71. An optoelectronic packaging assembly according to claim 70, wherein at least one cavity wall is beveled.

72. An optoelectronic packaging assembly according to claim 56, wherein said submount includes a plurality of external ground bumps that are disposed between said transmission line pins.

73. An optoelectronic packaging assembly according to claim 56, wherein said base includes a plurality of fins covered with a conductive material.

74. An optoelectronic packaging assembly according to claim 56, further including an optical input receptacle for retaining an optical fiber.

75. An optoelectronic packaging assembly according to claim 56, wherein said base includes an insert molded thermally conductive plate.

76. An optoelectronic packaging assembly according to claim 56, further including a thermal-electric-cooler.

77. An optoelectronic packaging assembly according to claim 76, wherein said thermal-electric-cooler fits on said base.

78. An optoelectronic packaging assembly according to claim 75, further including a thermal-electric-cooler on said thermally conductive plate.

79. An optoelectronic packaging assembly according to claim 78, wherein said thermally conductive plate is formed to mate with an external structure.

80. An optoelectronic packaging assembly according to claim 56, wherein each of said plurality of transmission line pins includes an inner portion within the optoelectronic packaging assembly wherein said inner conductor is exposed.

81. An optoelectronic packaging assembly according to claim 56, wherein each of said plurality of transmission line pins includes an outer portion wherein said inner conductor is exposed.

82. An optoelectronic packaging assembly according to claim 56, wherein said base includes a flange with mounting holes.

ABSTRACT OF THE DISCLOSURE

Optoelectronic packaging assemblies for optically and electrically interfacing a protected electro-optical device or system to both an optical fiber and to external circuitry. Such assemblies are comprised of body components that are comprised of plastic that coated or plated with a conductive material. Electrical contact pins in the form of transmission lines are used to couple external electrical signals with the package. The optoelectronic packaging assemblies are dimensioned with small cavities and with steps, breaks, walls, and/or fins molded into the body components. The optoelectronic packaging assemblies further include an optical input receptacle for receiving an optical ferrule and an optical fiber. The optoelectronic packaging assembly provides for cooling, such as by heat sink fins and/or a thermal-electric-cooler. The transmission line pins and body components are dimensioned to mate with a standardized circuit board having transmission line traces.